Gravatt, Dan

From: Bob Jelinek <bobjelinek@emsidenver.com>
Sent: Monday, March 24, 2014 4:23 PM
To: Gravatt, Dan
Subject: RE: Ra226 CSUs for April 2013 EPA Splits - West Lake Landfill OU-1 Add'l GW Monitoring events
Attachments: removed.txt; J2077-1 UDS Level 2 Report Final Report.pdf

Dan - sorry to keep bugging you, but I need the Total Uncertainties from the actual lab reports for the Ra226 (for example, see pg 13 on the attached lab report for Ra228).

The Excel files from the database you sent does not include the Uncertainties.

Thanks,
Bob Jelinek

7220 W. Jefferson Ave, Suite 406
Lakewood, CO 80235
303-940-3426 x. 8
303-807-9601 mobile
303-940-3422 fax
bobjelinek@emsidenver.com
www.emsidenver.com

From: Gravatt, Dan [mailto:Gravatt.Dan@epa.gov]
Sent: Friday, March 21, 2014 11:52 AM
To: Bob Jelinek
Subject: RE: Ra226 CSUs for April 2013 EPA Splits - West Lake Landfill OU-1 Add'l GW Monitoring events

Here they are.

Daniel R. Gravatt, PG
US EPA Region 7 SUPR/MOKS
11201 Renner Boulevard, Lenexa, KS 66219
Phone (913) 551-7324

Principles and integrity are expensive, but they are among the very few things worth having.

From: Bob Jelinek [mailto:bobjelinek@emsidenver.com]
Sent: Wednesday, March 19, 2014 1:50 PM
To: Gravatt, Dan
Subject: Ra226 CSUs for April 2013 EPA Splits - West Lake Landfill OU-1 Add'l GW Monitoring events

Dan -

Per your email below, lab reports J2049, -2075 and -2077 contain April 2013 EPA split data for all parameters except Ra226. There must be some other lab reports for just the Ra226 results.

0714

40491624

3.0

0401

Superfund

See the attached database that EPA provided way back. Look in yellow-highlighted Rows 698-709, column P says the Ra226 was analyzed in May, while all the other parameters were analyzed in April.

Hopefully there are other lab reports floating around where the Ra226 results are reported.

Will you pls look into this?

Thanks,
Bob Jelinek

7220 W. Jefferson Ave, Suite 406
Lakewood, CO 80235
303-940-3426 x. 8
303-807-9601 mobile
303-940-3422 fax
bobjelinek@emsidenver.com
www.emsidenver.com

From: Gravatt, Dan [mailto:Gravatt.Dan@epa.gov]
Sent: Wednesday, March 05, 2014 10:43 AM
To: Bob Jelinek
Cc: Paul Rosasco
Subject: RE: Missing information for split samples - West Lake Landfill OU-1 Add'l GW Monitoring events

Bob, Paul, attached is the requested data.

J2049, -2075 and -2077 contain April 2013 EPA split data with CSUs and define the G qualifier.
F2H080425 and F2H080457 contain the August 2012 EPA split data with CSUs and MDAs and show the lab-applied qualifiers.

Sincerely,
Daniel R. Gravatt, PG
US EPA Region 7 SUPR/MOKS
11201 Renner Boulevard, Lenexa, KS 66219
Phone (913) 551-7324

Principles and integrity are expensive, but they are among the very few things worth having.

From: Bob Jelinek [mailto:bobjelinek@emsidenver.com]
Sent: Friday, February 14, 2014 4:41 PM
To: Gravatt, Dan
Cc: Paul Rosasco
Subject: Missing information for split samples - West Lake Landfill OU-1 Add'l GW Monitoring events

Dan - we are putting together the Comprehensive Data Summary Report for the four 2012-2013 additional groundwater monitoring events at the West Lake Landfill.

We realized that we do not have the following data for the EPA split samples collected in Aug 2012 and April 2013 and are hoping you can share these data with us:

- August 2012: CSUs and MDAs for all of the radionuclide results.
- April 2013: CSUs for all of the radionuclide results. Also, there is a "G" qualifier associated with some of the Radium-228 and Thorium data. We are not familiar with this qualifier, and are assuming it must be a laboratory-specific qualifier. Could you look at the lab reports and let us know what the "G" signifies?

In addition, for the 2012 results, it appears that data validation was performed on the results for the non-radionuclide parameters. Was data validation conducted on the radionuclide data, and if so, were there any qualifiers placed on any results?

Thanks,

Bob Jelinek

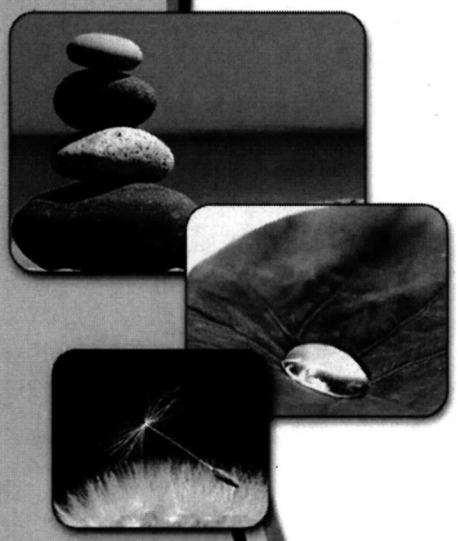
7220 W. Jefferson Ave, Suite 406
Lakewood, CO 80235
303-940-3426 x. 8
303-807-9601 mobile
303-940-3422 fax
bobjelinek@emsidenver.com
www.emsidenver.com

This was done to limit the distribution of computer viruses introduced into the EPA network. EPA is deleting all computer program attachments sent from the Internet into the agency via Email.

If the message sender is known and the attachment was legitimate, you should contact the sender and request that they rename the file name extension and resend the Email with the renamed attachment. After receiving the revised Email, containing the renamed attachment, you can rename the file extension to its correct name.

For further information, please contact the EPA Call Center at (866) 411-4EPA (4372). The TDD number is (866) 489-4900.

********** ATTACHMENT NOT DELIVERED **********



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-2077-1
Client Project/Site: Characterization

For:
Tetra Tech EM Inc.
415 Oak Street
Kansas City, Missouri 64106

Attn: Ms. Emily Fisher

Authorized for release by:
4/30/2013 12:10:27 PM

Erika Starman
Project Manager I
erika.starman@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Job ID: 160-2077-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech EM Inc.

Project: Characterization

Report Number: 160-2077-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The sample was received on 4/12/2013 9:38 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 18.0° C.

VOLATILE ORGANIC COMPOUNDS (GC MS)

Sample 12 (160-2077-1) was analyzed for volatile organic compounds (GC MS) in accordance with EPA SW-846 Method 8260C. The samples were analyzed on 04/16/2013.

No difficulties were encountered during the VOCs analysis.

All quality control parameters were within the acceptance limits.

TOTAL METALS (ICP)

Sample 12 (160-2077-1) was analyzed for total metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 04/18/2013 and analyzed on 04/22/2013.

Job ID: 160-2077-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

The presence of the '4' qualifier in the data indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Calcium failed the recovery criteria low for the MSD of sample 12MSD (160-2077-1) in batch 160-47292. Due to the high concentration of calcium, the matrix spike / matrix spike duplicate (MS/MSD) for batch 46727 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

The following samples were diluted due to the nature of the sample matrix. The sample digestates were yellow in color: (160-2077-1 MS), (160-2077-1 MSD), (160-2077-1 SD), 12 (160-2077-1)[5X]. Elevated reporting limits (RLs) are provided.

No other difficulties were encountered during the metals analysis.

All other quality control parameters were within the acceptance limits.

TOTAL MERCURY

Sample 12 (160-2077-1) was analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared on 04/25/2013 and analyzed on 04/26/2013.

Mercury failed the recovery criteria low for the MS and MSD of sample 12 (160-2077-1) in batch 160-48038. The RPD and associated laboratory control sample (LCS) recovery met acceptance criteria.

No other difficulties were encountered during the mercury analysis.

All other quality control parameters were within the acceptance limits.

RADIUM-228 (GFPC)

Sample 12 (160-2077-1) was analyzed for Radium-228 (GFPC) in accordance with EPA 904. The samples were prepared on 04/12/2013 and analyzed on 04/25/2013.

No difficulties were encountered during the Radium-228 analysis.

All quality control parameters were within the acceptance limits.

ISOTOPIC THORIUM (ALPHA SPECTROMETRY)

Sample 12 (160-2077-1) was analyzed for Isotopic Thorium (Alpha Spectrometry) in accordance with DOE. The samples were prepared on 04/15/2013 and analyzed on 04/16/2013.

Thorium-230 was detected in method blank MB 160-45940/1-A at a level that was above the method detection limit but below the reporting limit. Refer to the QC report for details.

The sample aliquots were reduced to 100mL due to high solid content. The samples also appeared to be soapy. Possible matrix interference. The Thorium samples: (160-2075-1 DU), 6 (160-2075-1), did not meet the CRDL due to the reduced sample volume. The data have been qualified and reported.

No other difficulties were encountered during the Isotopic Thorium analysis.

All other quality control parameters were within the acceptance limits.

ISOTOPIC URANIUM (ALPHA SPECTROMETRY)

Sample 12 (160-2077-1) was analyzed for Isotopic Uranium (Alpha Spectrometry) in accordance with DOE. The samples were prepared on 04/15/2013 and analyzed on 04/16/2013.

The sample aliquots were reduced to 100mL due to high solid content. The samples also appeared to be soapy. Possible matrix interference. 12 (160-2077-1)

Job ID: 160-2077-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

No other difficulties were encountered during the Isotopic Uranium analysis.

All other quality control parameters were within the acceptance limits.

TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Phone (314) 298-8566 Fax (314) 298-8757

CUL 138

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Dan Gravatt / Hest	Lab PM: Starman, Erika K	Carrier Tracking No(s):	COC No: 160-313-149.2
Client Contact: Ms. Emily Fisher	Phone: 913 551 7324	E-Mail: erika.starman@testamericainc.com		Page: Page ~~2 of 2~~ 3 of 3
Company: Tetra Tech EM Inc.				Job #:

Address: 415 Oak Street	Due Date Requested:
City: Kansas City	TAT Requested (days): Standard TAT
State, Zip: MO, 64106	PO #: Purchase Order Requested
Phone:	WO #:
Email: emily.fisher@tetratech.com	Project #: 16001850
Project Name: Characterization	SSOW#:
Site: West Lake Landfill	

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	A01R_U - Standard Target List	A01R_Th - Standard Target List	904.0 - Standard Target List	903.0 - Standard Target List	6010C, 7470A	8260C - OLM 4.2	Total Number of containers	Special Instructions/Note:
			Preservation Code:			D	D	D	D	D	A		
12	04/12/13	0915	G	W	N	X	X	X	X	X	X	8	
END of sampling under this P.O.													

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: D.R. Hatt	Date/Time: 4/12/2013 0938	Company	Received by: Gil Clark	Date/Time: 4.12.13 0938	Company TASTL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: Tetra Tech EM Inc.

Job Number: 160-2077-1

Login Number: 2077
List Number: 1
Creator: Clarke, Jill

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
F	MS or MSD exceeds the control limits

Rad

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2077-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL SL
6010C	Metals (ICP)	SW846	TAL SL
7470A	Mercury (CVAA)	SW846	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
A-01-R	Isotopic Thorium (Alpha Spectrometry)	DOE	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL

Protocol References:

DOE = U.S. Department of Energy

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2077-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-2077-1	12	Water	04/12/13 09:15	04/12/13 09:38

Detection Summary

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2077-1

Client Sample ID: 12

Lab Sample ID: 160-2077-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	9.5	J	20	6.7	ug/L	1		8260C	Total/NA
Benzene	1.3	J	5.0	0.25	ug/L	1		8260C	Total/NA
Chlorobenzene	1.6	J	5.0	0.38	ug/L	1		8260C	Total/NA
Methyl tert-butyl ether	0.68	J	5.0	0.40	ug/L	1		8260C	Total/NA
Aluminum	2400		1000	400	ug/L	5		6010C	Total/NA
Arsenic	20	J	50	9.9	ug/L	5		6010C	Total/NA
Barium	520		250	20	ug/L	5		6010C	Total/NA
Calcium	160000		5000	530	ug/L	5		6010C	Total/NA
Iron	13000		500	140	ug/L	5		6010C	Total/NA
Lead	12	J	50	7.5	ug/L	5		6010C	Total/NA
Magnesium	97000		5000	660	ug/L	5		6010C	Total/NA
Manganese	120		75	17	ug/L	5		6010C	Total/NA
Potassium	15000	J	25000	8300	ug/L	5		6010C	Total/NA
Sodium	100000		5000	1600	ug/L	5		6010C	Total/NA
Zinc	84	J	100	26	ug/L	5		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2077-1

Client Sample ID: 12
Date Collected: 04/12/13 09:15
Date Received: 04/12/13 09:38

Lab Sample ID: 160-2077-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.29	ug/L			04/16/13 06:26	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.43	ug/L			04/16/13 06:26	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	0.25	ug/L			04/16/13 06:26	1
1,1,2-Trichloroethane	ND		5.0	0.57	ug/L			04/16/13 06:26	1
1,1-Dichloroethane	ND		5.0	0.39	ug/L			04/16/13 06:26	1
1,1-Dichloroethene	ND		5.0	0.37	ug/L			04/16/13 06:26	1
1,2,4-Trichlorobenzene	ND		5.0	0.55	ug/L			04/16/13 06:26	1
1,2-Dibromo-3-Chloropropane	ND		10	1.2	ug/L			04/16/13 06:26	1
1,2-Dichlorobenzene	ND		5.0	0.28	ug/L			04/16/13 06:26	1
1,2-Dichloroethane	ND		5.0	0.37	ug/L			04/16/13 06:26	1
1,2-Dichloropropane	ND		5.0	0.32	ug/L			04/16/13 06:26	1
1,3-Dichlorobenzene	ND		5.0	0.23	ug/L			04/16/13 06:26	1
1,4-Dichlorobenzene	ND		5.0	0.35	ug/L			04/16/13 06:26	1
2-Butanone (MEK)	ND		20	0.39	ug/L			04/16/13 06:26	1
2-Hexanone	ND		20	0.59	ug/L			04/16/13 06:26	1
4-Methyl-2-pentanone (MIBK)	ND		20	0.33	ug/L			04/16/13 06:26	1
Acetone	**9.5**	**J**	20	6.7	ug/L			04/16/13 06:26	1
Benzene	**1.3**	**J**	5.0	0.25	ug/L			04/16/13 06:26	1
Bromoform	ND		5.0	0.37	ug/L			04/16/13 06:26	1
Bromomethane	ND		10	0.40	ug/L			04/16/13 06:26	1
Carbon disulfide	ND		5.0	0.37	ug/L			04/16/13 06:26	1
Carbon tetrachloride	ND		5.0	0.36	ug/L			04/16/13 06:26	1
Chlorobenzene	**1.6**	**J**	5.0	0.38	ug/L			04/16/13 06:26	1
Dibromochloromethane	ND		5.0	0.33	ug/L			04/16/13 06:26	1
Chloroethane	ND		10	0.38	ug/L			04/16/13 06:26	1
Chloroform	ND		5.0	0.15	ug/L			04/16/13 06:26	1
Chloromethane	ND		10	0.55	ug/L			04/16/13 06:26	1
cis-1,2-Dichloroethene	ND		5.0	0.16	ug/L			04/16/13 06:26	1
cis-1,3-Dichloropropene	ND		5.0	0.34	ug/L			04/16/13 06:26	1
Cyclohexane	ND		10	0.36	ug/L			04/16/13 06:26	1
Bromodichloromethane	ND		5.0	0.25	ug/L			04/16/13 06:26	1
Dichlorodifluoromethane	ND		10	0.45	ug/L			04/16/13 06:26	1
Ethylbenzene	ND		5.0	0.30	ug/L			04/16/13 06:26	1
1,2-Dibromoethane (EDB)	ND		5.0	0.44	ug/L			04/16/13 06:26	1
Isopropylbenzene	ND		5.0	0.26	ug/L			04/16/13 06:26	1
Methyl acetate	ND		5.0	2.3	ug/L			04/16/13 06:26	1
Methyl tert-butyl ether	**0.68**	**J**	5.0	0.40	ug/L			04/16/13 06:26	1
Methylcyclohexane	ND		10	0.26	ug/L			04/16/13 06:26	1
Methylene Chloride	ND		5.0	1.7	ug/L			04/16/13 06:26	1
m-Xylene & p-Xylene	ND		5.0	0.57	ug/L			04/16/13 06:26	1
o-Xylene	ND		5.0	0.32	ug/L			04/16/13 06:26	1
Styrene	ND		5.0	0.35	ug/L			04/16/13 06:26	1
Tetrachloroethene	ND		5.0	0.28	ug/L			04/16/13 06:26	1
Toluene	ND		5.0	1.0	ug/L			04/16/13 06:26	1
trans-1,2-Dichloroethene	ND		5.0	0.18	ug/L			04/16/13 06:26	1
trans-1,3-Dichloropropene	ND		5.0	0.35	ug/L			04/16/13 06:26	1
Trichloroethene	ND		5.0	0.29	ug/L			04/16/13 06:26	1
Trichlorofluoromethane	ND		5.0	0.22	ug/L			04/16/13 06:26	1
Vinyl chloride	ND		5.0	0.43	ug/L			04/16/13 06:26	1

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2077-1

Client Sample ID: 12
Date Collected: 04/12/13 09:15
Date Received: 04/12/13 09:38

Lab Sample ID: 160-2077-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		10	0.85	ug/L			04/16/13 06:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*108*		*85 - 115*		*04/16/13 06:26*	*1*
Dibromofluoromethane (Surr)	*104*		*85 - 119*		*04/16/13 06:26*	*1*
4-Bromofluorobenzene (Surr)	*111*		*82 - 121*		*04/16/13 06:26*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*82 - 132*		*04/16/13 06:26*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2400**		1000	400	ug/L		04/18/13 13:25	04/22/13 20:21	5
Antimony	ND		50	20	ug/L		04/18/13 13:25	04/22/13 20:21	5
Arsenic	**20**	J	50	9.9	ug/L		04/18/13 13:25	04/22/13 20:21	5
Barium	**520**		250	20	ug/L		04/18/13 13:25	04/22/13 20:21	5
Beryllium	ND		25	3.1	ug/L		04/18/13 13:25	04/22/13 20:21	5
Cadmium	ND		25	4.6	ug/L		04/18/13 13:25	04/22/13 20:21	5
Calcium	**160000**		5000	530	ug/L		04/18/13 13:25	04/22/13 20:21	5
Chromium	ND		50	16	ug/L		04/18/13 13:25	04/22/13 20:21	5
Cobalt	ND		250	20	ug/L		04/18/13 13:25	04/22/13 20:21	5
Copper	ND		130	23	ug/L		04/18/13 13:25	04/22/13 20:21	5
Iron	**13000**		500	140	ug/L		04/18/13 13:25	04/22/13 20:21	5
Lead	**12**	J	50	7.5	ug/L		04/18/13 13:25	04/22/13 20:21	5
Magnesium	**97000**		5000	660	ug/L		04/18/13 13:25	04/22/13 20:21	5
Manganese	**120**		75	17	ug/L		04/18/13 13:25	04/22/13 20:21	5
Nickel	ND		200	67	ug/L		04/18/13 13:25	04/22/13 20:21	5
Potassium	**15000**	J	25000	8300	ug/L		04/18/13 13:25	04/22/13 20:21	5
Selenium	ND		75	13	ug/L		04/18/13 13:25	04/22/13 20:21	5
Silver	ND		50	30	ug/L		04/18/13 13:25	04/22/13 20:21	5
Sodium	**100000**		5000	1600	ug/L		04/18/13 13:25	04/22/13 20:21	5
Thallium	ND		100	20	ug/L		04/18/13 13:25	04/22/13 20:21	5
Vanadium	ND		250	20	ug/L		04/18/13 13:25	04/22/13 20:21	5
Zinc	**84**	J	100	26	ug/L		04/18/13 13:25	04/22/13 20:21	5

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.060	ug/L		04/25/13 10:22	04/26/13 15:42	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.87**		0.339	0.380	1.00	0.364	pCi/L	04/12/13 14:43	04/25/13 10:59	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.9*		*40 - 110*	*04/12/13 14:43*	*04/25/13 10:59*	*1*
Y Carrier	*89.0*		*40 - 110*	*04/12/13 14:43*	*04/25/13 10:59*	*1*

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2077-1

Client Sample ID: 12
Date Collected: 04/12/13 09:15
Date Received: 04/12/13 09:38

Lab Sample ID: 160-2077-1
Matrix: Water

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Thorium-228	0.269	U	0.423	0.424	1.00	0.694	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Thorium-230	**1.05**		0.719	0.724	1.00	0.509	pCi/L	04/15/13 05:56	04/16/13 20:03	1
Thorium-232	-0.0669	U	0.0772	0.0775	1.00	0.642	pCi/L	04/15/13 05:56	04/16/13 20:03	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Thorium-229	*77.1*		*30 - 110*	*04/15/13 05:56*	*04/16/13 20:03*	*1*

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-233/234	**1.35**		0.738	0.747	1.00	0.551	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-235/236	-0.0664	U	0.0766	0.0769	1.00	0.637	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-238	**0.645**		0.502	0.505	1.00	0.403	pCi/L	04/15/13 05:56	04/16/13 20:04	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*96.7*		*30 - 110*	*04/15/13 05:56*	*04/16/13 20:04*	*1*

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2077-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 160-46421/2
Matrix: Water
Analysis Batch: 46421

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	0.29	ug/L			04/16/13 05:59	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.43	ug/L			04/16/13 05:59	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	0.25	ug/L			04/16/13 05:59	1
1,1,2-Trichloroethane	ND		5.0	0.57	ug/L			04/16/13 05:59	1
1,1-Dichloroethane	ND		5.0	0.39	ug/L			04/16/13 05:59	1
1,1-Dichloroethene	ND		5.0	0.37	ug/L			04/16/13 05:59	1
1,2,4-Trichlorobenzene	ND		5.0	0.55	ug/L			04/16/13 05:59	1
1,2-Dibromo-3-Chloropropane	ND		10	1.2	ug/L			04/16/13 05:59	1
1,2-Dichlorobenzene	ND		5.0	0.28	ug/L			04/16/13 05:59	1
1,2-Dichloroethane	ND		5.0	0.37	ug/L			04/16/13 05:59	1
1,2-Dichloropropane	ND		5.0	0.32	ug/L			04/16/13 05:59	1
1,3-Dichlorobenzene	ND		5.0	0.23	ug/L			04/16/13 05:59	1
1,4-Dichlorobenzene	ND		5.0	0.35	ug/L			04/16/13 05:59	1
2-Butanone (MEK)	ND		20	0.39	ug/L			04/16/13 05:59	1
2-Hexanone	ND		20	0.59	ug/L			04/16/13 05:59	1
4-Methyl-2-pentanone (MIBK)	ND		20	0.33	ug/L			04/16/13 05:59	1
Acetone	ND		20	6.7	ug/L			04/16/13 05:59	1
Benzene	ND		5.0	0.25	ug/L			04/16/13 05:59	1
Bromoform	ND		5.0	0.37	ug/L			04/16/13 05:59	1
Bromomethane	ND		10	0.40	ug/L			04/16/13 05:59	1
Carbon disulfide	ND		5.0	0.37	ug/L			04/16/13 05:59	1
Carbon tetrachloride	ND		5.0	0.36	ug/L			04/16/13 05:59	1
Chlorobenzene	ND		5.0	0.38	ug/L			04/16/13 05:59	1
Dibromochloromethane	ND		5.0	0.33	ug/L			04/16/13 05:59	1
Chloroethane	ND		10	0.38	ug/L			04/16/13 05:59	1
Chloroform	ND		5.0	0.15	ug/L			04/16/13 05:59	1
Chloromethane	ND		10	0.55	ug/L			04/16/13 05:59	1
cis-1,2-Dichloroethene	ND		5.0	0.16	ug/L			04/16/13 05:59	1
cis-1,3-Dichloropropene	ND		5.0	0.34	ug/L			04/16/13 05:59	1
Cyclohexane	ND		10	0.36	ug/L			04/16/13 05:59	1
Bromodichloromethane	ND		5.0	0.25	ug/L			04/16/13 05:59	1
Dichlorodifluoromethane	ND		10	0.45	ug/L			04/16/13 05:59	1
Ethylbenzene	ND		5.0	0.30	ug/L			04/16/13 05:59	1
1,2-Dibromoethane (EDB)	ND		5.0	0.44	ug/L			04/16/13 05:59	1
Isopropylbenzene	ND		5.0	0.26	ug/L			04/16/13 05:59	1
Methyl acetate	ND		5.0	2.3	ug/L			04/16/13 05:59	1
Methyl tert-butyl ether	ND		5.0	0.40	ug/L			04/16/13 05:59	1
Methylcyclohexane	ND		10	0.26	ug/L			04/16/13 05:59	1
Methylene Chloride	ND		5.0	1.7	ug/L			04/16/13 05:59	1
m-Xylene & p-Xylene	ND		5.0	0.57	ug/L			04/16/13 05:59	1
o-Xylene	ND		5.0	0.32	ug/L			04/16/13 05:59	1
Styrene	ND		5.0	0.35	ug/L			04/16/13 05:59	1
Tetrachloroethene	ND		5.0	0.28	ug/L			04/16/13 05:59	1
Toluene	ND		5.0	1.0	ug/L			04/16/13 05:59	1
trans-1,2-Dichloroethene	ND		5.0	0.18	ug/L			04/16/13 05:59	1
trans-1,3-Dichloropropene	ND		5.0	0.35	ug/L			04/16/13 05:59	1
Trichloroethene	ND		5.0	0.29	ug/L			04/16/13 05:59	1
Trichlorofluoromethane	ND		5.0	0.22	ug/L			04/16/13 05:59	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 160-46421/2
Matrix: Water
Analysis Batch: 46421

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0	0.43	ug/L			04/16/13 05:59	1
Xylenes, Total	ND		10	0.85	ug/L			04/16/13 05:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*85 - 115*		*04/16/13 05:59*	*1*
Dibromofluoromethane (Surr)	*99*		*85 - 119*		*04/16/13 05:59*	*1*
4-Bromofluorobenzene (Surr)	*105*		*82 - 121*		*04/16/13 05:59*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*82 - 132*		*04/16/13 05:59*	*1*

Lab Sample ID: LCS 160-46421/3
Matrix: Water
Analysis Batch: 46421

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	50.0	50.3		ug/L		101	85 - 115
1,1,2,2-Tetrachloroethane	50.0	49.9		ug/L		100	84 - 115
1,1,2-Trichloroethane	50.0	50.4		ug/L		101	85 - 115
1,1-Dichloroethane	50.0	50.0		ug/L		100	85 - 115
1,1-Dichloroethene	50.0	50.4		ug/L		101	85 - 118
1,2,4-Trichlorobenzene	50.0	54.5		ug/L		109	75 - 124
1,2-Dibromo-3-Chloropropane	50.0	54.1		ug/L		108	71 - 123
1,2-Dichlorobenzene	50.0	51.6		ug/L		103	85 - 115
1,2-Dichloroethane	50.0	49.9		ug/L		100	79 - 122
1,2-Dichloropropane	50.0	51.2		ug/L		102	85 - 115
1,3-Dichlorobenzene	50.0	51.5		ug/L		103	85 - 115
1,4-Dichlorobenzene	50.0	50.6		ug/L		101	85 - 115
2-Butanone (MEK)	50.0	55.2		ug/L		110	71 - 123
2-Hexanone	50.0	54.5		ug/L		109	66 - 121
4-Methyl-2-pentanone (MIBK)	50.0	53.7		ug/L		107	74 - 123
Acetone	50.0	48.1		ug/L		96	51 - 140
Benzene	50.0	50.5		ug/L		101	85 - 115
Bromoform	50.0	52.2		ug/L		104	85 - 115
Bromomethane	50.0	52.6		ug/L		105	70 - 135
Carbon disulfide	50.0	50.5		ug/L		101	85 - 123
Carbon tetrachloride	50.0	51.5		ug/L		103	85 - 118
Chlorobenzene	50.0	50.7		ug/L		101	85 - 115
Dibromochloromethane	50.0	52.7		ug/L		105	85 - 115
Chloroethane	50.0	50.5		ug/L		101	75 - 125
Chloroform	50.0	49.6		ug/L		99	85 - 115
Chloromethane	50.0	49.9		ug/L		100	73 - 132
cis-1,2-Dichloroethene	50.0	50.6		ug/L		101	85 - 115
cis-1,3-Dichloropropene	50.0	53.4		ug/L		107	85 - 127
Cyclohexane	50.0	52.8		ug/L		106	73 - 115
Bromodichloromethane	50.0	51.2		ug/L		102	85 - 117
Dichlorodifluoromethane	50.0	50.4		ug/L		101	62 - 115
Ethylbenzene	50.0	52.0		ug/L		104	85 - 115
1,2-Dibromoethane (EDB)	50.0	52.4		ug/L		105	85 - 115
Isopropylbenzene	50.0	52.3		ug/L		105	85 - 124

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 160-46421/3
Matrix: Water
Analysis Batch: 46421

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl acetate	50.0	53.4		ug/L		107	73 - 135
Methyl tert-butyl ether	50.0	52.6		ug/L		105	73 - 115
Methylcyclohexane	50.0	51.9		ug/L		104	85 - 134
Methylene Chloride	50.0	50.4		ug/L		101	84 - 115
m-Xylene & p-Xylene	100	107		ug/L		107	85 - 115
o-Xylene	50.0	55.4		ug/L		111	85 - 115
Styrene	50.0	53.9		ug/L		108	85 - 115
Tetrachloroethene	50.0	52.1		ug/L		104	85 - 115
Toluene	50.0	52.0		ug/L		104	85 - 115
trans-1,2-Dichloroethene	50.0	50.0		ug/L		100	85 - 115
trans-1,3-Dichloropropene	50.0	53.9		ug/L		108	85 - 123
Trichloroethene	50.0	48.7		ug/L		97	85 - 115
Trichlorofluoromethane	50.0	49.3		ug/L		99	85 - 116
Vinyl chloride	50.0	49.5		ug/L		99	68 - 133
Xylenes, Total	150	162		ug/L		108	

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*85 - 115*
Dibromofluoromethane (Surr)	*103*		*85 - 119*
4-Bromofluorobenzene (Surr)	*104*		*82 - 121*
1,2-Dichloroethane-d4 (Surr)	*102*		*82 - 132*

Lab Sample ID: 160-2077-1 MS
Matrix: Water
Analysis Batch: 46421

Client Sample ID: 12
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		50.0	49.1		ug/L		98	85 - 118
1,1,2,2-Tetrachloroethane	ND		50.0	49.5		ug/L		99	85 - 116
1,1,2-Trichloroethane	ND		50.0	49.3		ug/L		99	85 - 115
1,1-Dichloroethane	ND		50.0	49.4		ug/L		99	85 - 115
1,1-Dichloroethene	ND		50.0	49.2		ug/L		98	85 - 118
1,2,4-Trichlorobenzene	ND		50.0	51.1		ug/L		102	75 - 124
1,2-Dibromo-3-Chloropropane	ND		50.0	50.7		ug/L		101	71 - 123
1,2-Dichlorobenzene	ND		50.0	50.0		ug/L		100	84 - 115
1,2-Dichloroethane	ND		50.0	49.0		ug/L		98	80 - 125
1,2-Dichloropropane	ND		50.0	49.7		ug/L		99	85 - 117
1,3-Dichlorobenzene	ND		50.0	49.9		ug/L		100	84 - 115
1,4-Dichlorobenzene	ND		50.0	49.2		ug/L		98	85 - 115
2-Butanone (MEK)	ND		50.0	56.7		ug/L		113	73 - 133
2-Hexanone	ND		50.0	50.5		ug/L		101	66 - 121
4-Methyl-2-pentanone (MIBK)	ND		50.0	51.8		ug/L		104	77 - 134
Acetone	9.5	J	50.0	54.5		ug/L		90	38 - 150
Benzene	1.3	J	50.0	50.9		ug/L		99	85 - 115
Bromoform	ND		50.0	52.1		ug/L		104	84 - 116
Bromomethane	ND		50.0	50.9		ug/L		102	70 - 135
Carbon disulfide	ND		50.0	49.0		ug/L		98	85 - 127
Carbon tetrachloride	ND		50.0	50.4		ug/L		101	85 - 121

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 160-2077-1 MS
Matrix: Water
Analysis Batch: 46421

Client Sample ID: 12
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chlorobenzene	1.6	J	50.0	51.0		ug/L		99	85 - 115
Dibromochloromethane	ND		50.0	50.7		ug/L		101	85 - 115
Chloroethane	ND		50.0	48.9		ug/L		98	73 - 123
Chloroform	ND		50.0	48.9		ug/L		98	85 - 115
Chloromethane	ND		50.0	48.0		ug/L		96	67 - 130
cis-1,2-Dichloroethene	ND		50.0	49.8		ug/L		100	80 - 116
cis-1,3-Dichloropropene	ND		50.0	50.8		ug/L		102	85 - 124
Cyclohexane	ND		50.0	52.2		ug/L		104	73 - 115
Bromodichloromethane	ND		50.0	49.4		ug/L		99	56 - 119
Dichlorodifluoromethane	ND		50.0	47.8		ug/L		96	85 - 119
Ethylbenzene	ND		50.0	50.4		ug/L		101	85 - 115
1,2-Dibromoethane (EDB)	ND		50.0	51.8		ug/L		104	85 - 115
Isopropylbenzene	ND		50.0	51.3		ug/L		103	85 - 124
Methyl acetate	ND		50.0	52.4		ug/L		105	49 - 150
Methyl tert-butyl ether	0.68	J	50.0	53.0		ug/L		105	75 - 115
Methylcyclohexane	ND		50.0	51.5		ug/L		103	85 - 137
Methylene Chloride	ND		50.0	49.1		ug/L		98	85 - 115
m-Xylene & p-Xylene	ND		100	103		ug/L		103	85 - 115
o-Xylene	ND		50.0	54.6		ug/L		109	85 - 118
Styrene	ND		50.0	52.9		ug/L		106	85 - 115
Tetrachloroethene	ND		50.0	49.6		ug/L		99	85 - 118
Toluene	ND		50.0	51.2		ug/L		102	85 - 118
trans-1,2-Dichloroethene	ND		50.0	49.4		ug/L		99	84 - 115
trans-1,3-Dichloropropene	ND		50.0	51.3		ug/L		103	85 - 127
Trichloroethene	ND		50.0	47.0		ug/L		94	85 - 115
Trichlorofluoromethane	ND		50.0	49.3		ug/L		99	85 - 115
Vinyl chloride	ND		50.0	48.4		ug/L		97	63 - 129
Xylenes, Total	ND		150	158		ug/L		105	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*85 - 115*
Dibromofluoromethane (Surr)	*105*		*85 - 119*
4-Bromofluorobenzene (Surr)	*104*		*82 - 121*
1,2-Dichloroethane-d4 (Surr)	*103*		*82 - 132*

Lab Sample ID: 160-2077-1 MSD
Matrix: Water
Analysis Batch: 46421

Client Sample ID: 12
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		50.0	49.1		ug/L		98	85 - 118	0	20
1,1,2,2-Tetrachloroethane	ND		50.0	49.4		ug/L		99	85 - 116	0	20
1,1,2-Trichloroethane	ND		50.0	48.7		ug/L		97	85 - 115	1	20
1,1-Dichloroethane	ND		50.0	49.7		ug/L		99	85 - 115	1	20
1,1-Dichloroethene	ND		50.0	49.6		ug/L		99	85 - 118	1	20
1,2,4-Trichlorobenzene	ND		50.0	53.0		ug/L		106	75 - 124	4	20
1,2-Dibromo-3-Chloropropane	ND		50.0	53.9		ug/L		108	71 - 123	6	20
1,2-Dichlorobenzene	ND		50.0	50.5		ug/L		101	84 - 115	1	20

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2077-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 160-2077-1 MSD
Matrix: Water
Analysis Batch: 46421

Client Sample ID: 12
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dichloroethane	ND		50.0	48.9		ug/L		98	80 - 125	0	20
1,2-Dichloropropane	ND		50.0	50.7		ug/L		101	85 - 117	2	20
1,3-Dichlorobenzene	ND		50.0	49.9		ug/L		100	84 - 115	0	20
1,4-Dichlorobenzene	ND		50.0	49.4		ug/L		99	85 - 115	0	20
2-Butanone (MEK)	ND		50.0	57.2		ug/L		114	73 - 133	1	20
2-Hexanone	ND		50.0	52.9		ug/L		106	66 - 121	5	20
4-Methyl-2-pentanone (MIBK)	ND		50.0	53.1		ug/L		106	77 - 134	2	20
Acetone	9.5	J	50.0	55.4		ug/L		92	38 - 150	2	20
Benzene	1.3	J	50.0	50.6		ug/L		99	85 - 115	1	20
Bromoform	ND		50.0	51.6		ug/L		103	84 - 116	1	20
Bromomethane	ND		50.0	50.8		ug/L		102	70 - 135	0	20
Carbon disulfide	ND		50.0	49.4		ug/L		99	85 - 127	1	20
Carbon tetrachloride	ND		50.0	50.5		ug/L		101	85 - 121	0	20
Chlorobenzene	1.6	J	50.0	50.8		ug/L		98	85 - 115	1	20
Dibromochloromethane	ND		50.0	51.1		ug/L		102	85 - 115	1	20
Chloroethane	ND		50.0	49.4		ug/L		99	73 - 123	1	20
Chloroform	ND		50.0	48.7		ug/L		97	85 - 115	0	20
Chloromethane	ND		50.0	47.8		ug/L		96	67 - 130	0	20
cis-1,2-Dichloroethene	ND		50.0	49.9		ug/L		100	80 - 116	0	20
cis-1,3-Dichloropropene	ND		50.0	51.5		ug/L		103	85 - 124	1	20
Cyclohexane	ND		50.0	52.3		ug/L		105	73 - 115	0	20
Bromodichloromethane	ND		50.0	50.2		ug/L		100	56 - 119	2	20
Dichlorodifluoromethane	ND		50.0	48.7		ug/L		97	85 - 119	2	20
Ethylbenzene	ND		50.0	49.9		ug/L		100	85 - 115	1	20
1,2-Dibromoethane (EDB)	ND		50.0	52.7		ug/L		105	85 - 115	2	20
Isopropylbenzene	ND		50.0	50.9		ug/L		102	85 - 124	1	20
Methyl acetate	ND		50.0	51.5		ug/L		103	49 - 150	2	20
Methyl tert-butyl ether	0.68	J	50.0	52.5		ug/L		104	75 - 115	1	20
Methylcyclohexane	ND		50.0	51.5		ug/L		103	85 - 137	0	20
Methylene Chloride	ND		50.0	49.3		ug/L		99	85 - 115	0	20
m-Xylene & p-Xylene	ND		100	102		ug/L		102	85 - 115	0	20
o-Xylene	ND		50.0	55.1		ug/L		110	85 - 118	1	20
Styrene	ND		50.0	52.7		ug/L		105	85 - 115	0	20
Tetrachloroethene	ND		50.0	51.0		ug/L		102	85 - 118	3	20
Toluene	ND		50.0	51.2		ug/L		102	85 - 118	0	20
trans-1,2-Dichloroethene	ND		50.0	48.8		ug/L		98	84 - 115	1	20
trans-1,3-Dichloropropene	ND		50.0	50.8		ug/L		102	85 - 127	1	20
Trichloroethene	ND		50.0	48.3		ug/L		97	85 - 115	3	20
Trichlorofluoromethane	ND		50.0	48.3		ug/L		97	85 - 115	2	20
Vinyl chloride	ND		50.0	48.8		ug/L		98	63 - 129	1	20
Xylenes, Total	ND		150	157		ug/L		105	70 - 130	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*85 - 115*
Dibromofluoromethane (Surr)	*104*		*85 - 119*
4-Bromofluorobenzene (Surr)	*105*		*82 - 121*
1,2-Dichloroethane-d4 (Surr)	*103*		*82 - 132*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 160-46727/1-A
Matrix: Water
Analysis Batch: 47292

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 46727

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		200	80	ug/L		04/18/13 13:25	04/22/13 20:07	1
Antimony	ND		10	4.0	ug/L		04/18/13 13:25	04/22/13 20:07	1
Arsenic	ND		10	2.0	ug/L		04/18/13 13:25	04/22/13 20:07	1
Barium	ND		50	4.0	ug/L		04/18/13 13:25	04/22/13 20:07	1
Beryllium	ND		5.0	0.61	ug/L		04/18/13 13:25	04/22/13 20:07	1
Cadmium	ND		5.0	0.91	ug/L		04/18/13 13:25	04/22/13 20:07	1
Calcium	ND		1000	110	ug/L		04/18/13 13:25	04/22/13 20:07	1
Chromium	ND		10	3.1	ug/L		04/18/13 13:25	04/22/13 20:07	1
Cobalt	ND		50	4.0	ug/L		04/18/13 13:25	04/22/13 20:07	1
Copper	ND		25	4.6	ug/L		04/18/13 13:25	04/22/13 20:07	1
Iron	ND		100	28	ug/L		04/18/13 13:25	04/22/13 20:07	1
Lead	ND		10	1.5	ug/L		04/18/13 13:25	04/22/13 20:07	1
Magnesium	ND		1000	130	ug/L		04/18/13 13:25	04/22/13 20:07	1
Manganese	ND		15	3.3	ug/L		04/18/13 13:25	04/22/13 20:07	1
Nickel	ND		40	13	ug/L		04/18/13 13:25	04/22/13 20:07	1
Potassium	ND		5000	1700	ug/L		04/18/13 13:25	04/22/13 20:07	1
Selenium	ND		15	2.7	ug/L		04/18/13 13:25	04/22/13 20:07	1
Silver	ND		10	6.0	ug/L		04/18/13 13:25	04/22/13 20:07	1
Sodium	ND		1000	320	ug/L		04/18/13 13:25	04/22/13 20:07	1
Thallium	ND		20	4.0	ug/L		04/18/13 13:25	04/22/13 20:07	1
Vanadium	ND		50	4.1	ug/L		04/18/13 13:25	04/22/13 20:07	1
Zinc	ND		20	5.2	ug/L		04/18/13 13:25	04/22/13 20:07	1

Lab Sample ID: LCS 160-46727/2-A
Matrix: Water
Analysis Batch: 47292

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 46727

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	10000	10300		ug/L		103	80 - 120
Antimony	500	526		ug/L		105	80 - 120
Arsenic	1000	1010		ug/L		101	80 - 120
Barium	1000	1030		ug/L		103	80 - 120
Beryllium	1000	1020		ug/L		102	80 - 120
Cadmium	1000	1050		ug/L		105	80 - 120
Calcium	10000	10500		ug/L		105	80 - 120
Chromium	1000	1070		ug/L		107	80 - 120
Cobalt	1000	1090		ug/L		109	80 - 120
Copper	1000	1060		ug/L		106	80 - 120
Iron	10000	10300		ug/L		103	80 - 120
Lead	1000	1060		ug/L		106	80 - 120
Magnesium	10000	10200		ug/L		102	80 - 120
Manganese	1000	1040		ug/L		104	80 - 120
Nickel	1000	1100		ug/L		110	80 - 120
Potassium	10000	10000		ug/L		100	80 - 120
Selenium	1000	1030		ug/L		103	80 - 120
Silver	100	97.5		ug/L		98	80 - 120
Sodium	10000	10000		ug/L		100	80 - 120
Thallium	200	221		ug/L		110	80 - 120

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 160-46727/2-A
Matrix: Water
Analysis Batch: 47292

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 46727

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vanadium	1000	1010		ug/L		101	80 - 120
Zinc	1000	1050		ug/L		105	80 - 120

Lab Sample ID: 160-2077-1 MS
Matrix: Water
Analysis Batch: 47292

Client Sample ID: 12
Prep Type: Total/NA
Prep Batch: 46727

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	2400		10000	14300		ug/L		119	75 - 125
Antimony	ND		500	524		ug/L		105	75 - 125
Arsenic	20	J	1000	1040		ug/L		102	75 - 125
Barium	520		1000	1570		ug/L		105	75 - 125
Beryllium	ND		1000	1050		ug/L		105	75 - 125
Cadmium	ND		1000	1070		ug/L		107	75 - 125
Calcium	160000		10000	172000	4	ug/L		116	75 - 125
Chromium	ND		1000	1080		ug/L		108	75 - 125
Cobalt	ND		1000	1090		ug/L		109	75 - 125
Copper	ND		1000	1070		ug/L		107	75 - 125
Iron	13000		10000	23500		ug/L		101	75 - 125
Lead	12	J	1000	1070		ug/L		106	75 - 125
Magnesium	97000		10000	108000	4	ug/L		112	75 - 125
Manganese	120		1000	1170		ug/L		105	75 - 125
Nickel	ND		1000	1130		ug/L		113	75 - 125
Potassium	15000	J	10000	25400		ug/L		107	75 - 125
Selenium	ND		1000	1030		ug/L		103	75 - 125
Silver	ND		100	95.5		ug/L		96	75 - 125
Sodium	100000		10000	114000	4	ug/L		107	75 - 125
Thallium	ND		200	229		ug/L		115	75 - 125
Vanadium	ND		1000	1050		ug/L		105	75 - 125
Zinc	84	J	1000	1150		ug/L		106	75 - 125

Lab Sample ID: 160-2077-1 MSD
Matrix: Water
Analysis Batch: 47292

Client Sample ID: 12
Prep Type: Total/NA
Prep Batch: 46727

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	2400		10000	14500		ug/L		121	75 - 125	1	20
Antimony	ND		500	509		ug/L		102	75 - 125	3	20
Arsenic	20	J	1000	1020		ug/L		100	75 - 125	2	20
Barium	520		1000	1550		ug/L		103	75 - 125	1	20
Beryllium	ND		1000	1030		ug/L		103	75 - 125	1	20
Cadmium	ND		1000	1050		ug/L		105	75 - 125	2	20
Calcium	160000		10000	168000	4	ug/L		73	75 - 125	3	20
Chromium	ND		1000	1060		ug/L		106	75 - 125	2	20
Cobalt	ND		1000	1070		ug/L		107	75 - 125	2	20
Copper	ND		1000	1060		ug/L		106	75 - 125	1	20
Iron	13000		10000	23600		ug/L		103	75 - 125	1	20
Lead	12	J	1000	1060		ug/L		104	75 - 125	1	20
Magnesium	97000		10000	105000	4	ug/L		87	75 - 125	2	20

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 160-2077-1 MSD — **Client Sample ID: 12**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 47292 — **Prep Batch: 46727**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Manganese	120		1000	1150		ug/L		103	75 - 125	1	20
Nickel	ND		1000	1130		ug/L		113	75 - 125	0	20
Potassium	15000	J	10000	25200		ug/L		105	75 - 125	1	20
Selenium	ND		1000	1000		ug/L		100	75 - 125	3	20
Silver	ND		100	92.5		ug/L		93	75 - 125	3	20
Sodium	100000		10000	112000	4	ug/L		85	75 - 125	2	20
Thallium	ND		200	230		ug/L		115	75 - 125	0	20
Vanadium	ND		1000	1030		ug/L		103	75 - 125	2	20
Zinc	84	J	1000	1130		ug/L		104	75 - 125	2	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 160-47764/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 48038 — **Prep Batch: 47764**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.060	ug/L		04/25/13 10:22	04/26/13 15:39	1

Lab Sample ID: LCS 160-47764/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 48038 — **Prep Batch: 47764**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	1.00	1.01		ug/L		101	80 - 120

Lab Sample ID: 160-2077-1 MS — **Client Sample ID: 12**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 48038 — **Prep Batch: 47764**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		1.00	0.762	F	ug/L		76	80 - 120

Lab Sample ID: 160-2077-1 MSD — **Client Sample ID: 12**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 48038 — **Prep Batch: 47764**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		1.00	0.693	F	ug/L		69	80 - 120	10	20

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-45826/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 47803 — **Prep Batch: 45826**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1301	U	0.188	0.188	1.00	0.312	pCi/L	04/12/13 14:43	04/25/13 10:59	1

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: MB 160-45826/1-A
Matrix: Water
Analysis Batch: 47803

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45826

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 - 110	04/12/13 14:43	04/25/13 10:59	1
Y Carrier	92.7		40 - 110	04/12/13 14:43	04/25/13 10:59	1

Lab Sample ID: LCS 160-45826/2-A
Matrix: Water
Analysis Batch: 47803

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45826

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			4.38	3.985		0.567	1.00	0.324	pCi/L	91	56 - 140		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	97.6		40 - 110
Y Carrier	88.2		40 - 110

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Lab Sample ID: MB 160-45940/1-A
Matrix: Water
Analysis Batch: 46320

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45940

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Thorium-228	-0.01431	U	0.0723	0.0723	1.00	0.195	pCi/L	04/15/13 05:56	04/16/13 20:02	1
Thorium-230	0.2908		0.165	0.167	1.00	0.103	pCi/L	04/15/13 05:56	04/16/13 20:02	1
Thorium-232	0.04702	U	0.0812	0.0813	1.00	0.141	pCi/L	04/15/13 05:56	04/16/13 20:02	1

Tracer	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Thorium-229	78.5		30 - 110	04/15/13 05:56	04/16/13 20:02	1

Lab Sample ID: LCS 160-45940/2-A
Matrix: Water
Analysis Batch: 46337

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45940

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Thorium-230			8.64	9.990		1.27	1.00	0.223	pCi/L	116	81 - 125		

Tracer	LCS %Yield	LCS Qualifier	Limits
Thorium-229	79.0		30 - 110

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2077-1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-45941/1-A
Matrix: Water
Analysis Batch: 46310

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45941

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-233/234	0.02115	U	0.0688	0.0688	1.00	0.143	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-235/236	-0.004386	U	0.00877	0.00878	1.00	0.0996	pCi/L	04/15/13 05:56	04/16/13 20:04	1
Uranium-238	0.01172	U	0.0388	0.0388	1.00	0.0919	pCi/L	04/15/13 05:56	04/16/13 20:04	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*97.3*		*30 - 110*	*04/15/13 05:56*	*04/16/13 20:04*	*1*

Lab Sample ID: LCS 160-45941/2-A
Matrix: Water
Analysis Batch: 46311

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45941

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Uranium-233/234	13.1	11.33		1.33	1.00	0.125	pCi/L	87	84 - 120
Uranium-238	13.6	12.78		1.46	1.00	0.111	pCi/L	94	83 - 121

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Uranium-232	*93.6*		*30 - 110*

GC/MS VOA

Analysis Batch: 46421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2077-1	12	Total/NA	Water	8260C	
160-2077-1 MS	12	Total/NA	Water	8260C	
160-2077-1 MSD	12	Total/NA	Water	8260C	
LCS 160-46421/3	Lab Control Sample	Total/NA	Water	8260C	
MB 160-46421/2	Method Blank	Total/NA	Water	8260C	

Metals

Prep Batch: 46727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2077-1	12	Total/NA	Water	3010A	
160-2077-1 MS	12	Total/NA	Water	3010A	
160-2077-1 MSD	12	Total/NA	Water	3010A	
LCS 160-46727/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 160-46727/1-A	Method Blank	Total/NA	Water	3010A	

Analysis Batch: 47292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2077-1	12	Total/NA	Water	6010C	46727
160-2077-1 MS	12	Total/NA	Water	6010C	46727
160-2077-1 MSD	12	Total/NA	Water	6010C	46727
LCS 160-46727/2-A	Lab Control Sample	Total/NA	Water	6010C	46727
MB 160-46727/1-A	Method Blank	Total/NA	Water	6010C	46727

Prep Batch: 47764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2077-1	12	Total/NA	Water	7470A	
160-2077-1 MS	12	Total/NA	Water	7470A	
160-2077-1 MSD	12	Total/NA	Water	7470A	
LCS 160-47764/2-A	Lab Control Sample	Total/NA	Water	7470A	
MB 160-47764/1-A	Method Blank	Total/NA	Water	7470A	

Analysis Batch: 48038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2077-1	12	Total/NA	Water	7470A	47764
160-2077-1 MS	12	Total/NA	Water	7470A	47764
160-2077-1 MSD	12	Total/NA	Water	7470A	47764
LCS 160-47764/2-A	Lab Control Sample	Total/NA	Water	7470A	47764
MB 160-47764/1-A	Method Blank	Total/NA	Water	7470A	47764

Rad

Prep Batch: 45826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2077-1	12	Total/NA	Water	PrecSep_0	
LCS 160-45826/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
MB 160-45826/1-A	Method Blank	Total/NA	Water	PrecSep_0	

Rad (Continued)

Prep Batch: 45940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2077-1	12	Total/NA	Water	ExtChrom	
LCS 160-45940/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
MB 160-45940/1-A	Method Blank	Total/NA	Water	ExtChrom	

Prep Batch: 45941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-2077-1	12	Total/NA	Water	ExtChrom	
LCS 160-45941/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
MB 160-45941/1-A	Method Blank	Total/NA	Water	ExtChrom	

Surrogate Summary

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2077-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	TOL (85-115)	DBFM (85-119)	BFB (82-121)	12DCE (82-132)
160-2077-1	12	108	104	111	102
160-2077-1 MS	12	102	105	104	103
160-2077-1 MSD	12	102	104	105	103
LCS 160-46421/3	Lab Control Sample	103	103	104	102
MB 160-46421/2	Method Blank	104	99	105	99

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)

Tracer/Carrier Summary

Client: Tetra Tech EM Inc.
Project/Site: Characterization

TestAmerica Job ID: 160-2077-1

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
		Ba	Y
Lab Sample ID	Client Sample ID	(40-110)	(40-110)
160-2077-1	12	95.9	89.0
LCS 160-45826/2-A	Lab Control Sample	97.6	88.2
MB 160-45826/1-A	Method Blank	96.5	92.7

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Matrix: Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
		Th-229
Lab Sample ID	Client Sample ID	(30-110)
160-2077-1	12	77.1
LCS 160-45940/2-A	Lab Control Sample	79.0
MB 160-45940/1-A	Method Blank	78.5

Tracer/Carrier Legend

Th-229 = Thorium-229

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water — **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
		U-232
Lab Sample ID	Client Sample ID	(30-110)
160-2077-1	12	96.7
LCS 160-45941/2-A	Lab Control Sample	93.6
MB 160-45941/1-A	Method Blank	97.3

Tracer/Carrier Legend

U-232 = Uranium-232